

AMPEX

ABR-10 / ABR-15 Broadcast Recorder/ Reproducers



ABR-10 ABR-15

*New truly symmetrical
bidirectional
recorder/reproducers
designed specifically
for broadcasters*

- **Designed for use in automation or studio applications.**
- **Servo-controlled capstan motors provide constant capstan speed.**
- **Exceptional tape speed accuracy throughout reel for long-term repeatable performance.**
- **Manually adjustable speed control for fast forward/reverse tape search.**
- **Bidirectional configuration available with automatic reversing.**
- **Adjacent speed pairs selected from $15/16$ ips, $17/8$ ips, $33/4$ ips, $71/2$ ips or 15 ips.**
- **Selection of reel sizes to $101/2$ or 15 inches.**
- **Compensated start for large reels provides close cues for tight operation.**

The new ABR Series recorder/reproducers have been designed specifically for the broadcaster. Versatile and dependable, these professional quality units are today's answers to today's needs in unattended program automation systems. Yet, the ABR Series is value-designed to ensure unbeatable reliability at reasonable cost.

Affording the professional audio industry truly symmetrical bidirectional recorder/reproducers in design and operation, each mechanical and electrical device has its mirror image counterpart. Unidirectional models are also available.

The ABR-10 operates with reel sizes from 5 to $101/2$ inches. The ABR-15 is designed for reels of up to 15 inches for long-duration record or playback. ABR Series machines are available in either record/reproduce or playback-only configurations.

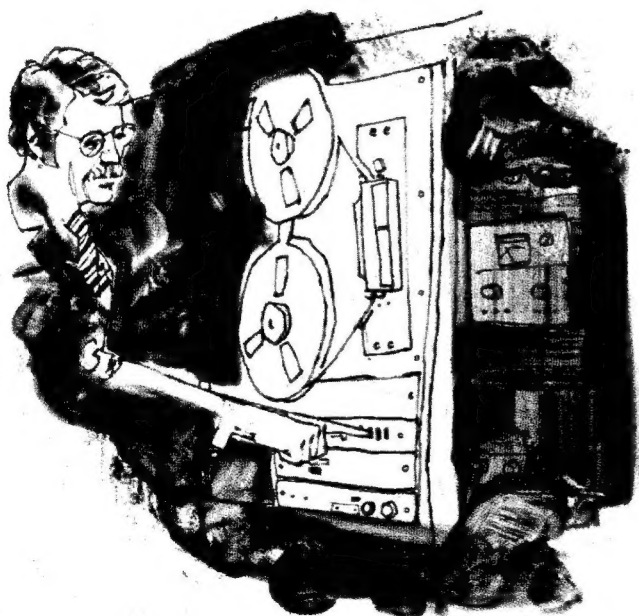
In the bidirectional configuration, Ampex ABR Series recorders are totally symmetrical machines. Separate capstan drive motors are used, one for each direction, allowing improved production and providing a full program automation capability. Tape is always pulled across the heads, thus improving head-to-tape contact.

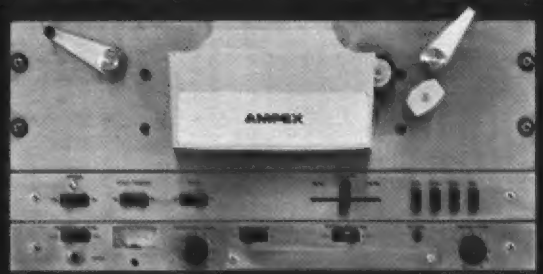
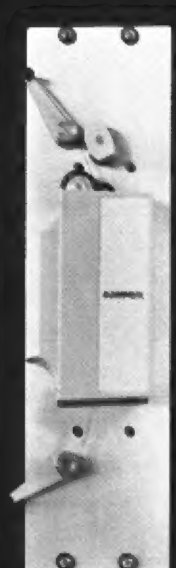
Automatic reversing with the use of alternate tracks in each direction eliminates turning reels over and recueing. This means long play programming can be completely automated. A new direct-drive system controlled by an electronic servo uses specially designed DC motors. This system eliminates several electrical and mechanical components that can affect tape speed stability and increase flutter. Tape speed is maintained regardless of voltage, frequency, and phase fluctuations from the input power line. Accuracy is better than 0.08% over the entire length of tape at any tape speed.

Operating speed is obtained in 0.1 second or less. The quick tape start of the new ABR Series allows more precise cue control than has been available in the past with large reels.

A completely separate servo-controlled tape tension system automatically adjusts torque of reel motors, providing correct tension throughout the reel without adjustment. The feature introduces more accurate timing from beginning to end of reel regardless of tape-pack diameter or reel size.

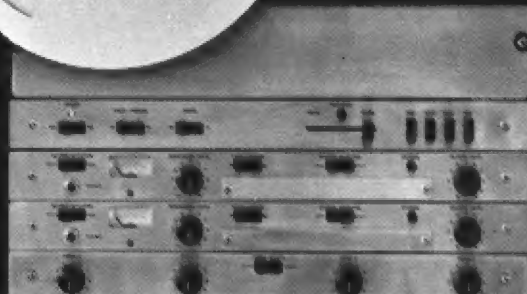
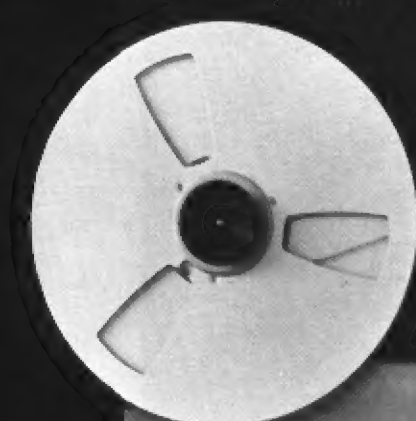
Quick cueing or tape search is provided by a slider control designed specifically for the operator. The front-panel slider controls tape winding speed in both directions, allowing infinitely variable fast forward and rewind at operator command.



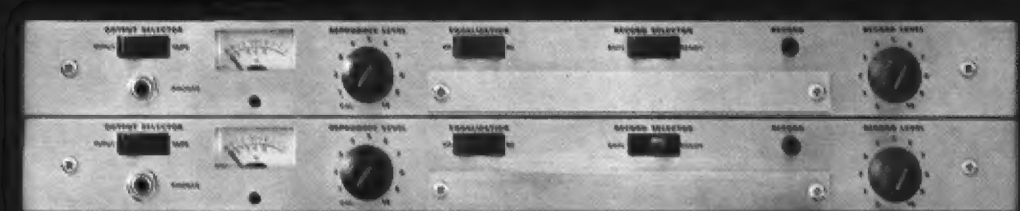
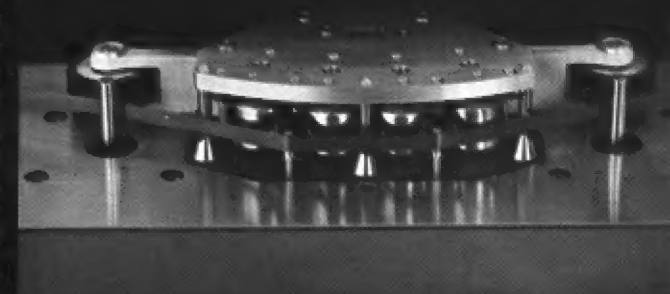


ABR-10

ABR-15



Head assemblies are available for quarter-track stereo, two-track or full-track operation—all designed for 1/4-inch tape. Bidirectional machines have two sets of identical heads—one set for each direction.



Each module provides record and reproduce electronics for one channel or reproduce-only electronics for two channels. Equalization is provided for adjacent speed pairs. Speed pairs may be chosen from 15 1/16 to 15 ips for several different record/reproduce or playback-only applications.

The Mini-Mixer is available as an accessory for the ABR-10 or the ABR-15. Microphones, phonograph pick-ups, balanced or unbalanced line inputs can be mixed for recording on the ABR recorder. The Mini-Mixer will accept up to four inputs for mixing two stereo or four monaural inputs, and accessory plug-in amplifier or transformers may be added as required.



ABR Series Specifications

Tape Format Full, half or quarter tracks on 1/4-inch-wide tape, 1-mil or 1 1/2-mil base. Specifications are based on Ampex recommended professional quality magnetic tape on 10 1/2-inch aluminum reels.

Tape Speeds Standard, selectable pairs from 1 1/6, 1 1/8, 3 3/4, 7 1/2, or 15 ips for either unidirectional or bidirectional operation.

Reel Size 5 inches to 10 1/2 inches in diameter for Model ABR-10. 5 inches to 15 inches in diameter for Model ABR-15.

Frequency Response

15 ips: 30 to 18,000 Hz, ± 3 dB
7 1/2 ips: 40 to 15,000 Hz, ± 2 dB
3 3/4 ips: 40 to 10,000 Hz, ± 2 dB
1 1/8 ips: 40 to 10,000 Hz, ± 3 dB
1 1/6 ips: 100 to 5,000 Hz, ± 3 dB

Crosstalk Rejection

60 dB or better at 1000 Hz (2-track head stacks).

Bias Oscillator

Nominal bias/erase frequency: 100 kHz.

Flutter and Wow

15 ips: 0.1%
7 1/2 ips: 0.15%
3 3/4 ips: 0.18%
1 1/8 ips: 0.25%
1 1/6 ips: 0.4%

(Measured to ASA Z57.1-1954, including all components from 5 Hz to 200 Hz.)

Signal-To-Noise Ratio

| Tape Speed | Full Track | Half Track | Quarter Track |
|------------|------------|------------|---------------|
| 15 ips | 68 dB | 63 dB | 57 dB |
| 7 1/2 ips | 68 dB | 63 dB | 57 dB |
| 3 3/4 ips | 63 dB | 58 dB | 51 dB |
| 1 1/8 ips | | 45 dB | 42 dB |
| 1 1/6 ips | | 40 dB | 40 dB |

(Peak record level to unweighted noise. Includes bias, erase, and playback amplifier noise.)

Input

100,000 ohms unbalanced. Accepts line level from -17 dBm for recommended operating level.

Output

+4 dBm, balanced.
+24 dBm clipping level. Amplifier total harmonic distortion at +20 dBm is less than 0.1%.

Equalization

90 μ s to 200 μ s at 1 1/6, 1 1/8, and 3 3/4 ips.
NAB equalization for 7 1/2 and 15 ips tape speeds.

Fast Speed

Fast speed for rewind or search functions manually adjustable. Minimum rewind time: approximately 90 seconds for 2400-foot NAB reel. Approximately 3 minutes for 5000-foot, 14-inch reel.

Start Time

Operating speed obtained in 0.1 second or less; 3 seconds to normal flutter specification.

Stop Time At 15 ips (15-in. reel) tape moves 3 inches.

Tape Speed Accuracy

Within $\pm 0.08\%$ from beginning to end of reel. With internal speed control, tape speed unaffected by line voltage or frequency fluctuations.

Reference Oscillator Stability

Bridge Oscillator: $\pm 0.05\%$, 0° to 65° C.

Crystal Oscillator: $\pm 0.01\%$, -10° to 75° C.

Capstan Speed Accuracy

Capstan speed as referred to the servo reference frequency shall be less than that shown as measured throughout any reel of tape:

| Tape Speed | Capstan Position Error |
|------------|------------------------|
| 15 ips | $\pm 75 \mu$ s |
| 7 1/2 ips | $\pm 150 \mu$ s |
| 3 3/4 ips | $\pm 300 \mu$ s |

Power Requirements

105 to 125 volts ac, 50/60 Hz.

Power Consumption

2.2 amp at 115 volts ac.

Size and Weight

ABR-10, Tape Transport (bidirectional):

14 inches high x 19 inches wide;
42 pounds.

ABR-15, Tape Transport (bidirectional):

24 1/2 inches high x 19 inches wide;
50 pounds.

Electronics and Control Units:

1 3/4 inches high x 19 inches wide (each unit); 4-6 pounds.

Accessories

Mini-Mixer—permits mixing two signals into each channel for stereo or four signals into one channel for mono.

Remote Control—allows operation from remote locations.

Ampex Corporation reserves the right to change specifications without notice and without obligation. These specifications supersede all previous specifications, stated or implied.

AMPEX

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